

# THE POPULATION PROBLEM AND THE FUTURE\* ✓

By D. V. GLASS

THE past year has seen a marked change in the general attitude towards the population question—at least, so far as can be judged from the articles in newspapers and periodicals. Instead of seeing comments on the rapidity with which various populations are growing, we now find a general acceptance of the probability that our population will decline and speculations on the consequences of such a decline. What is particularly interesting about this *volte-face* is not the phenomenon itself, but the length of time it needed to take place—nearly a hundred and forty years.

## *The Malthusian Hypothesis*

About a hundred and forty years ago Malthus published his *Essay on the Principle of Population*, and brought population into the public arena. Beginning with two simple postulates, “that food is necessary to the existence of man,” and “that the passion between the sexes is necessary and will remain nearly in its present state,” he arrived at the following thesis. First, that population is necessarily limited by the means of subsistence. Secondly, population always increases when the means of subsistence increase, unless it is prevented by such checks as famine, war, plague or moral restraint. Finally, the actual population was at its particular size because no increase in that size could be compensated by greater or even equal increases in the means of subsistence.

Even at the beginning of the nineteenth century, when the effects of the Napoleonic Wars were being felt severely, and when the process of industrial change was bearing heavily upon the “common man,” acceptance of the Malthusian doctrine was by no means universal. There were, for example,

the celebrated attacks of Godwin and Shelley, and the books and pamphlets of Graham and Weyland, Alison, Sadler and Doubleday. The economists of the day did, however, accept the theory and used it with depressing results in their own field of inquiry.

After the middle of the nineteenth century attention was drawn away from the population controversy. This was not due to any successful refutation of Malthus's principle, but to the fact that industrial progress was so rapid that the question of the pressure of numbers upon the means of subsistence became purely theoretical. The question was not again publicly aired until the shock of what, up to 1930, used to be called the “Great Depression” had caused some anxiety to the people who had hitherto believed that prosperity had come to stay. At the same time the belief in the automatic action and eternal value of *laissez-faire* was breaking down, and the road being thrown open to intervention by the State and other institutions. Once external control is an accepted possibility, the population question assumes a new importance, and it is not surprising to find, in the 'nineties, such statisticians as Dr. Ogle and Dr. G. B. Longstaff again referring to the “most formidable” rate of natural increase in England and Wales, and the imminent need to control that rate in order to prevent the pressure of numbers on the means of subsistence. Yet while these statisticians were re-creating the Malthusian spectre, the birth-rate was already sliding downwards.

## *Technique of Population Analysis*

If we look back to the period we have just discussed, two facts become evident. First, the early nineteenth-century theorists were discussing hypothetical rates of increase—both the Malthusians and their opponents.

\* A Paper read at the Annual Conference of Educational Associations, January 1937.

Secondly, the overpopulation exponents of the later part of the century were discussing the future, as their successors still do to-day, in terms of the crude rate of natural increase shown at the time—that is, the percentage by which the population increases from year to year. Both forms of discussion are likely to lead to incorrect conclusions: the first because the imagination is unhampered by the bonds of vital statistics, and the second because the technique of analysis is basically unsound.

In view of the recent publicity given to the topic, it is unnecessary here to recapitulate the criteria which must be fulfilled in the accurate analysis of population trends. It will be sufficient to state, as a reminder, that these criteria are not satisfied by birth-rates, general fertility rates, or crude rates of natural increase. To estimate the trend of a population we need to know not just how many births and deaths there are each year, but to what extent the fertile sections of the population are replacing themselves from generation to generation. Consequently not until the extension of vital statistics and the development of methods of analysis like those of Kuczynski, Burgdörfer and Dublin and Lotka were we in a position to discuss anything more than hypothetical rates of growth. The Malthusian controversy, so far as its scientific aspect is concerned, has thus resolved itself into a discussion of what has been and what is now taking place, instead of what might perhaps take place if fertility were unchecked.

#### *Population Trend Since 1851*

Looking at the population of England and Wales from this point of view, we notice three facts. In the first place, there is no reason to believe that fertility varied a great deal up to the third quarter of the nineteenth century. We cannot, with any accuracy, go back before 1851, but examining the fertility rates from that point to 1871, we see that the average number of children born to a woman passing through the child-bearing period was

4.49 in 1851  
4.61 in 1861  
4.78 in 1871

The rise shown by these figures is very small—over the whole period it amounts to only about 6.5 per cent.—and since the period was one in which the system of registration was still in process of completion, it is possible that the real increase was even smaller. The second fact, which follows directly from the first, is that the major factor responsible for the growth of the population was not the rise in fertility but the fall in mortality.\* Thirdly, instead of an increase in material productivity being accompanied by a corresponding rise in fertility, it was, after 1870, accompanied by a marked fall. The average number of children born to each woman passing through the child-bearing period was

4.64 in 1881  
4.16 in 1891  
3.51 in 1901  
2.94 in 1911  
2.72 in 1921

showing a fall of over 43 per cent. between 1871 and 1921. Since we want to know the extent to which each woman is replacing herself, we are concerned particularly with the average number of female children born to each woman passing through the child-bearing period. This is shown in Column B of Table I.

TABLE I

	A	B
	Average number of children born to each woman passing through the child-bearing period; with the fertility rates, found in different years in England and Wales.	Average number of female children born to each woman in the same circumstances.
1851 ...	4.49	2.20
1861 ...	4.61	2.26
1871 ...	4.78	2.34
1881 ...	4.64	2.28
1891 ...	4.16	2.04
1901 ...	3.51	1.73
1911 ...	2.94	1.44
1921 ...	2.72	1.32
1931 ...	1.91	0.93
1934 ...	1.79	0.87

#### *Significance of Decline in Replacement Rate*

The figures indicate that by 1934 fertility had fallen so low that even if all the female

\* The mean expectation of life at birth has risen from 41.19 years in 1838-44 to 60.76 years in 1930-2.

children born to each woman were themselves to survive until the completion of the child-bearing period, the rate of replacement would not be adequate to maintain the population. When, in addition, it is remembered that some of the children die between the ages of 0 and 50 years, the deficit is still more apparent. In 1934, in fact, taking into account the existing conditions of fertility and mortality, the rate of replacement was only 76 per cent. of that necessary to maintain the population. It follows that if fertility remains unchanged our population will soon reach its peak level, and after a transition period of slow decline will begin to fall off at the rate of 24 per cent. in every generation. At this rate of decline, it would be reduced to about 15 per cent. of its previous size in just over two hundred years.\* The rate of decline could be reduced slightly by further reductions in mortality, but the effect would be insignificant. This is so, first, because no amount of reduction in mortality between the ages of 0 and 50 years would make the replacement rate adequate, and, secondly, because no extension in the expectation of life beyond these ages, since they are outside the child-bearing period, could increase the reproductive capacity of the nation. In this situation the population question has changed its direction. We are no longer concerned, in the Western World at any rate, with the pressure of numbers on the means of subsistence. On the contrary the problem now appears to be the possible effect of declining numbers on the economic and social progress of the community. The Malthusian issue, whatever its original applicability might have been, is now no longer of practical interest to us.

The question that arises is: Are we justified in considering that the decline in fertility creates a real problem? The implication is twofold. Is there any reason to believe that the decline is likely to be permanent, and, if so, is the prospect of a declining population a disconcerting one? These questions take us into what is at present practically the realm of the unknown, and the

only answers we can give are general ones, based on very rough analyses of historical trends.

### *The Persistence of the Decline in Fertility*

If the decline in fertility were the product of only one or two decades, or of small statistical size, we might be justified in assuming that it was likely to be ephemeral and unimportant. But it has been in evidence in this country for about sixty years, and during that period it has proceeded so rapidly that the average number of children born to a woman living through the child-bearing period has fallen from 4.78 to 1.79, a decline of nearly 63 per cent. Moreover, the phenomenon is not confined to England and Wales, but is apparent in every country of the Western World. The table of net reproduction rates\* given in Table II shows that of sixteen European and other Western countries, nine had net reproduction rates below unity at the dates when the figures were last available, and it is probable that in at least three more of the countries the rates have fallen

TABLE II  
COUNTRIES WITH NET REPRODUCTION RATES UNDER  
UNITY†

Austria	...	...	1931/2	0.714
England and Wales			1933	0.735
Germany	...	...	1931	0.748
Sweden	...	...	1926/30	0.857
France	...	...	1931	0.860
Latvia	...	...	1929	0.900
United States	...	...	1933	0.940
Australia	...	...	1932/3	0.976
New Zealand	...	...	1933	0.978

COUNTRIES WITH NET REPRODUCTION RATES ABOVE  
UNITY†

Hungary	...	...	1930/1	1.011
Denmark	...	...	1926/30	1.012
Finland	...	...	1921/30	1.074
Italy	...	...	1931	1.209
Canada	...	...	1931	1.319
Portugal	...	...	1930/1	1.334
Bulgaria	...	...	1926/7	1.446

\* The net reproduction rate combines the number of female children born to a woman passing through the child-bearing period in given conditions of fertility with the extent to which those children will themselves survive, under given conditions of mortality, and pass through the child-bearing period in the succeeding generation.

† The above rates are from Kuczynski, R. R., *The Measurement of Population Growth*, with the exception of those for France and the United States.

\* That is, in two hundred years after the age-composition had become stable.

below unity since the dates given. Moreover in every country—with the possible exception of Germany, and even there the possibility is not very great—the downward trend has been unbroken and shows no signs of being checked in most recent years. Also the countries whose rates are still above unity are those in which the process of Westernization, or industrialization, began latest. The persistence of relatively high rates in those countries is, then, more probably due to a time-lag in their development than to any basic difference between them and the countries where replacement is no longer adequate. To call the phenomenon of declining fertility superficial and ephemeral is, consequently, to shirk the question, and not to dispose of it. It is vital that we realize the probability of a declining population in the near future and at least take steps to meet the problems presented by such a decline, even if we are not prepared to attempt a reversal of the trend.

### *The Term "Declining Population"*

So far as the second implication referred to above is concerned—namely whether the prospect of a declining population is a disconcerting one—it is imperative that we should clearly understand what the term "declining population" means. Popular interpretation of the term is at present confused, translating it into two possibilities: either that the population falls for a time but then stabilizes itself at a lower level, or that it falls continuously without any sign of stabilization. The importance of distinguishing between these current interpretations is due to the fact that the economic and social consequences of the two events are likely to be very different. In the first case we have two problems to encounter—one arising from an initial decrease in aggregate numbers, and the other arising out of the fact of stability. In the former problem we are concerned with the effect of reduction in numbers on the demand for goods and services, and on the efficiency with which the productive resources of the community are used. That is, the question is one of optimum population. Now it is possible that, given

our present stock of technical knowledge and capital equipment, England and Wales is slightly overpopulated. If so, a reduction in numbers, unaccompanied by any other change, would increase the national dividend and ought therefore to increase the *per capita* income of the population. At the same time, there is no reason to believe that further advances in technique will not be made during the period in which the population is falling, and every advance in knowledge tends to increase the size of the population which would give the most efficient use of the productive equipment and resources of the community. It might then happen that, with the ensuing technical progress, a stationary number of inhabitants would mean underpopulation—not that the standard of life would fall, but that it might not rise as much as it would have done if numbers were increasing.

### *Influence of Smaller Numbers on Economic Demand*

But to state the problem in this way is to put it very crudely. In reality there are many complex factors which may swing the balance in either direction. For example, there is the influence of smaller numbers on the demand for different kinds of goods and for goods in general. To some extent the future of large-scale production depends upon this, though it also depends upon the size of the aggregate national dividend. In general, there is no reason to fear that the total demand for goods and services will necessarily be reduced with a smaller population, even though the demands for specific products may be smaller. But there is also the point that production is generally carried on ahead of demand, and usually in anticipation of a growing demand. With fixed numbers there might soon be a satiation point for particular products, and the flow would thenceforth have to be more or less constant. In certain fields this might have the result of a constant reduction of human employment. In agriculture, for example, this would be the case. But with technical progress we should in any case expect the production of any one commodity



or one group of commodities to need a smaller amount of labour, and the problem created by a stationary population is not new even though it may be more noticeable. It is a question of preventing decreasing employment in one branch of production from becoming increasing unemployment, and is more intimately connected with the given economic and social system than with the given size of the population. Again, reverting to our previous discussion, although rising numbers might, from some points of view, increase the standard of life more quickly than stationary numbers, there might at the same time be a point beyond which increasing physical congestion in housing and the connected social services, as well as in transport, would send up the costs of the economic system to a level higher than we anticipate. Nor must we forget that the possibilities of technical progress in production are so great that we might easily afford to sacrifice part of our future economic well-being if, for other reasons, we decided to have a stationary, instead of a growing, population.

#### *Influence of Stability in Numbers*

The stability aspect of the stationary population\* is no less complex than the size aspect. In the first place we have to think of the flexibility of the economic system under the new conditions. In our present population, adaptability to new demands and new production is met largely by a redirection of young recruits to industry and the professions. In a growing population where the proportion of young people is larger than that of aged, this redirection is made somewhat easier. But with the swing in the age-composition that must necessarily occur under the impact of stationary numbers, there will tend to be less recruitment at the bottom and more wastage at the top

than with increasing numbers, and flexibility will be somewhat impaired. Here again, however, the problem is closely connected with the extent to which the society is run on planned lines. The tendency in general production is for the average worker to become a skilled machine-tender, and with a correctly orientated vocational education there is no reason to fear a decrease in the adaptability of the labour supply.

#### *Influence of Age-Composition of Population*

This brings up the problem of the age-composition of the population. A good many references have been made to it in the last few months, and it certainly does mean a change in the structure of the economic system. It may mean that fewer toys will be wanted; but on the other hand it may result in a greater demand for armchairs and slippers. It may mean an increase in the amount spent on pensions, but also a decrease in the aggregate cost of education. Thus the disadvantage of a slight ageing of the population is by no means to be taken for granted, particularly when we remember that the productive capacity of the community is likely to be increasing the whole time.

Moreover, if we are not prepared to accept some ageing of the population we must realize what the protest implies. If we were to stabilize our population at any level—at ten millions or a hundred millions—we should have a larger proportion of old persons than we have at present. If we take present mortality rates\* as our basis, a stationary population of any size would have approximately the age structure shown in Table III.

TABLE III

AGE STRUCTURE OF A STATIONARY POPULATION AT THE MORTALITY RATES OF 1930 TO 1932

Age of Persons.	Percentage of Total Population.
0-15 years.	22.37
15-60 years.	60.19
60 years and over.	17.44

This is rather different from our present situation, which, according to the 1931 Census, showed an allocation of 23.83 per

\* See Robbins, L., "Notes on Some Probable Consequences of the Advent of a Stationary Population in Great Britain" (*Economica*, 1929); Wolfe, A. B., "The Theory of Optimum Population" (*Annals of Am. Acad. of Pol. and Soc. Sc.*, Nov. 1936); and Wolfe, A. B., "The Rationalisation of Production and Reproduction" (in *Economics, Sociology and the Modern World*, ed. N. Himes, 1935).

\* As given in the English Life Table No. 10.

cent. of the population under 15 years of age, 64.61 per cent. between 15 and 60 years, and 11.56 per cent. over 60 years of age. But if we wished to keep this kind of age-composition we should have to follow the procedure of cyclical trends in fertility—alternations of low and high fertility—for the present position is the result of a special history of fertility. It arises from the combination of high fertility in the past and low fertility in the present. High fertility by itself would not achieve the exact result, for although helping to reduce the proportion of the very old, it would at the same time raise the proportion of the very young. But the change caused by the achievement of a stationary population would not, if regarded as a whole, be radical. Actually it would mean an increase in the non-active section of the population from 35.39 to 39.81 per cent., and even this might be more apparent than real. It might be made much greater by prolonged education of the younger sections of the population, or much less by the increased use of machinery involving little arduous labour on the part of the workers using it, and thus capable of being operated by persons much older than we are accustomed to find in our industrial system to-day.

#### *Falling Population and Military Strength*

All this discussion merely skims the surface of the problem of stabilizing our population at lower numbers than we have at present. But it at least serves to show how much spade-work is needed in this field, and, in particular, how much the material situation of the future depends upon the adequate planning of the economic system. I have attempted here to deal only with those problems which are pertinent to the population trend, and not with those which arise largely from prejudice or unfounded fears. In the latter category is, for example, the anxiety that a fall in our numbers may result in a deterioration of our military position *vis-à-vis* the other Powers. There is not a great deal of justification for this fear since first, as we have seen, most of the countries of the Western World are in a

position very similar to our own; and secondly, it ignores the possibility of attracting man-power from other countries by means of immigration facilities. It appears paradoxical that many of those who lament the falling off in our man-power for military purposes also believe in the maintenance of the present immigration regulations. In any case there might be one good reason to welcome a relative deterioration in our numbers, if it were carried far enough; we might then give up, like Denmark, attempts to compete in the armaments race and devote that section of our expenditure to a more worthy cause.

#### *Influence of Continuous Decline in Numbers*

At the beginning of this section of the discussion, we noted a second interpretation of the term "declining population"—a population the size of which continues to fall, with no tendency for stabilization to take place. Now the results of such a situation may be serious. In the first place there would be an intensification of the difficulties mentioned in the analysis of a stationary population—changes in the size and nature of the demand for goods and services, decreasing flexibility of the system due to shrinkage in the flow of new recruits to industry, and so forth. There are also two additional influences to take into account. With falling numbers, the change in the age-composition of the population may be very large. For example, according to the second estimate computed by Dr. Charles,\* the non-active section of the population might rise to as much as 60.71 per cent.—consisting of 2.96 per cent. of persons aged 0 to 15 years, and 57.75 per cent. of persons aged 60 years and over. This estimate assumes that fertility ceases to decline after 1985, so that eventually a stable age-composition would be reached. If fertility actually continued to decline after that date, the ageing of the population would be even more marked. At the same time the decline in the numbers

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\* Charles, E.: "The Effect of Present Trends in Fertility and Mortality upon the Future Population of England and Wales" (*London and Cambridge Economic Service, Special Memorandum No. 40, August 1935*).

themselves would involve the constant remoulding of the economic structure at a rate which might very well tax its powers of recuperation. Consider, for example, the impact of a fall of 25 per cent. in our numbers every thirty years (i.e. in successive generations). To maintain demand at even a constant level would involve a very high rate of increase in individual purchasing power, while if this were not done the obsolescence factor would rise far above any figure we have ever known. These are not problems about which we would wish to be dogmatic, but it is evident that the difficulties brought in the train of a continuously falling population would be of a magnitude demanding the most serious consideration. And though they could be surmounted with the help of some rational planning, they would probably divert, in the process, energies which might be better utilized.

This analysis has concerned itself with the economic effects of a declining population upon a society in which the means of production are privately owned. Were the resources owned by the community as a whole, the arguments would be far less applicable. There are two main reasons for this. First, because in that case it would be much easier to plan for the country and avoid discrepancies between supply and demand. Secondly, because the most palpable danger of a falling population—the impact of contracting markets upon individual producers and, through them, upon the workers in the affected industries—would not arise. However, even a public economy would have a number of problems to meet if its population were in a state of continuous decline. Of these, the most important would be the structural rigidity introduced by the diminishing proportion of young recruits to industry, and the general social consequences of a continuous ageing of the population. To sum up the situation, we may conclude that whereas in balance a stationary population may offer distinct advantages over a growing one, the same could not be said of a continuously falling population, even in a country in which the means of production were owned communally. In an individualist

civilization, the results might well be thoroughly disastrous, so far as we can judge from the past reactions to disturbances which, by comparison, were relatively unimportant.

### *Prerequisites of a Stationary Population*

Suppose, then, that we decide to have a stationary population. What would this involve? Primarily, it would mean raising fertility to a much higher level than its present one, though it need not mean an annual supply of births larger than we had, for example, in 1934. This may sound self-contradictory, but the justification for the statement becomes clear if we refer back to the earlier discussion on fertility and replacement. At that stage we noticed that a population would only be maintained if each woman had, on the average, a sufficient number of girl children to replace her in the next generation of potential mothers. If there were no mortality between the ages of 0 and 50 years, one girl child born to each woman would be sufficient, and, taking the present ratio of male to female live births, this would mean an average total of 2.05 children. But there is, of course, a considerable mortality between the ages of 0 and 50 years, and taking the present survival rate as the basis, each woman would need an average total of 2.37 children. If, further, we assume that as large a proportion of women will not marry as was shown in the 1931 Census—i.e. 17.46 per cent. between the ages of 40 and 49 years—then each married woman must, during her fertile period, bear 2.87 children in order for the population to be maintained. Having achieved that average, the total number of births only matters in deciding upon the level at which we wish to stabilize the population. In 1934, our population was 40.467 millions. Stabilization at that level, given our present mortality, would require an annual supply of about 666,000 live births. If, on the other hand, we wished to stabilize the number of women aged 15 to 49 years found in our 1934 population, we should require an annual supply of about 764,000 live births, and the total population

would then become stationary at the level of 46·426 millions.\*

In 1934 there were, in England and Wales, 597,642 live births. According to our calculations (see Table IV), an annual supply of that size should be enough to produce a stationary population of about 36·3 millions, and were that the prospect for the future, we should have no cause for anxiety. But in reality we had a large number of births not because fertility was high, but because there

TABLE IV

ANNUAL SUPPLY OF LIVE BIRTHS NECESSARY FOR MAINTAINING POPULATIONS OF DIFFERENT SIZES (WITH PRESENT MORTALITY RATES)

Size of Population in millions.	Annual Supply of Live Births necessary.	No. of Women aged 15 to 49 in the Given Populations (Millions).
50	822,900	11·965
48	790,000	11·486
46	757,100	11·007
44	724,200	10·529
42	691,200	10·050
40	658,300	9·572
38	625,400	9·093
36	592,500	8·614
34	559,600	8·136
32	526,700	7·657
30	493,700	7·179
28	460,800	6·700
26	427,900	6·222

was a large number of women of child-bearing age. And this, in turn, was due to the high fertility of the previous generation. In 1934, there were 11,109,200 women aged 15 to 49 years and 597,642 live births, giving a general fertility rate of 53·80 per thousand. But with present mortality the general fertility rate should be 68·78 per thousand if the population is to be replaced. What, therefore, was happening according to fertility in 1934 was that, instead of each woman bearing during her lifetime the average of 2·37 children necessary to replace herself, she was bearing only 1·79 children. With such fertility it is impossible for the population to stabilize itself at any level.

#### *Fertility Rates Required for Stable Population*

The only way to make replacement adequate is to raise fertility, and since at the

present time we have about the maximum number of potentially fertile women in our total population, an immediate campaign for the maintenance of a given population would need least initial change in fertility. Suppose we had decided to maintain a population equal in size to that found in England and Wales in 1934—that is, 40·467 millions. Requiring an annual supply of 666,000 live births with present mortality rates, this would involve, if we had decided to inaugurate the change in 1936, an increase of general fertility to 57·19 per thousand in that year as compared with 53·80 per thousand in 1934 (see Table V). Since the number of women aged 15 to 49 years will decline in the future, the continued annual supply of 666,000 live births would mean a steady rise in the general fertility rate until about 1976,

TABLE V

GENERAL FERTILITY RATE REQUIRED, BEGINNING IN 1936, TO MAINTAIN A POPULATION OF 40·467 MILLIONS, MORTALITY ASSUMED TO REMAIN AT THE 1930/2 LEVEL

Year.	No. of Women aged 15 to 49 years (Millions).	No. of Live Births per 1,000 Women aged 15 to 49 years.
1936	11·646	57·19
1941	11·194	59·50
1946	10·979	60·66
1951	10·633	62·64
1956	10·335	64·44
1961	10·007	65·55
1966	9·768	68·18
1971	9·667	68·90
1976	9·531	69·88
1981	9·579	69·53
1986 & subs.	9·683	68·78

after which the number of women in these age groups would rise slightly and stabilize themselves, by 1986, at 9·683 millions. The maintenance of a population of 40·467 millions would thenceforth require a constant general fertility of 68·78 per thousand. Since the rise in fertility shown in Table V is quite gradual—in the first forty years it means a total increase of under 21 per cent.—this method would probably be the least difficult to follow.

But to find a method that appears simple from the mechanical point of view does not provide a solution to a problem in social biology. The question that still remains unanswered is: Can we persuade people to

\* These results are obtained by variations of the method explained by Dr. F. Burgdörfer in his book, *Der Geburtenrückgang und seine Bekämpfung* (1929).



raise their fertility in this fashion, or can we persuade them to raise their fertility at all? We cannot, at present, give an answer to this question. Although we have a fair knowledge of the general trend of fertility in the past century, we have scarcely even begun to link up this trend, or fluctuations in it, with the movements of other factors in a way which could help us to solve the problem of depopulation.\*

### Conclusion

So long as this state of ignorance prevails, attempts to check the fall in fertility cannot hope to be successful, since they will be directed, as Dr. Kuczynski says, by "sentiment and prejudice," instead of by informed concern. At present we can only point to such general features in the situation as the changing nature and functions of the family, and notice that in our civilization the demands for a high standard of life and large families seem to be incompatible at the moment, though there is no technological reason why they should continue to be so. To be successful, measures for raising fertility will have to alter the attitude of the average person to marriage and the family,

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\* e.g. See Kuczynski, R. R.: "Economic Causes and Consequences of Population Movements" (*Index*, November 1936).

but it is extremely unlikely that this will be done unless, at the same time, some of the major characteristics of the present social and economic *milieu* are also altered. Even to provide fairly substantial family allowances—say, ten shillings per week for second and subsequent children up to 15 years of age—would probably involve a fundamental reconstruction of our society, since it is extremely doubtful if the cost, which would amount to well over a hundred and fifty million pounds a year, could be raised simply by the imposition of further taxes. My own view is that such a sum could only be raised either by reducing expenditure on armaments, or by putting aside for allowances a section of a much larger national dividend than we now have. Neither course appears feasible at the present time.

For the moment, therefore, our conclusion must be a relatively barren one. First, that the problems of a stationary or a declining population will not be met adequately by an unplanned economic system such as we have to-day. Secondly, only under some form of rationally planned civilization are we likely to produce an environment in which high fertility and a high standard of life will both be possible. This conclusion does not provide us with immediate practical remedies, but it is suggested that it points out the direction in which future research must proceed.